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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/849,171	05/04/2001	Brendan Alexander Voge	PDNO10007439-1	9679

7590 06/30/2005

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EXAMINER	
CHANG, JUNGWON	

ART UNIT	PAPER NUMBER
2154	

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/849,171	VOGE, BRENDAN ALEXANDER	
	Examiner	Art Unit	
	Jungwon Chang	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

FINAL ACTION

1. This office action is responsive to amendment filed on Claims 1-28 are presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6, 10-15, and 20-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Ogus (US 6,587,875) in view of Baumgartner et al. (US 6,334,177), hereinafter Baumgartner.

4. As to claims 1 and 19, Ogus discloses the invention substantially as claimed, including a method for operating a network (Ethernet; 18, fig. 2; Token ring; 34, fig. 3; 106; 108; fig. 6) connecting a plurality of processor cells (computer A-D; fig. 9) that are already configured in a multiprocessor system (fig. 9; col. 20, lines 43-44) with a plurality of links (AB-AD; BA-BD; CA-CD; DA-DC; fig. 9; col. 18, lines 29-37), comprising:

recognizing by software operating (335, 336, 337, fig. 14; col. 6, lines 6-15) on at

least one processor cell (computer A-D; fig. 9) when a network operation can use a link of said plurality of links to implement a network operation (col. 3, lines 4-19; col. 3, line 66 – col. 4, line 6); and

utilizing said link of said plurality of links to perform said network operation (col. 6, lines 27-52; col. 18, lines 29-44; col. 22, lines 58-61).

5. Ogus discloses a plurality of links (AB-AD; BA-BD; CA-CD; DA-DC; fig. 9; col. 18, lines 29-37) and high bandwidth (col. 2, lines 49-56; col. 12, lines 41-50; col. 19, lines 33-57). However, Ogus does not specifically disclose shared memory links for transmitting memory requests and memory responses between the processor cells, and wherein the link connects a high bandwidth integrated circuit of the one processor cell with another high bandwidth integrated circuit of another processor cell. Baumgartner discloses shared memory links (col. 1, lines 30-40 and 52-63; col. 2, lines 64-67; col. 3, lines 20-34) for transmitting memory requests and memory responses between the processor cells (read or write; col. 2, lines 6-19; col. 1, lines 41-63), and wherein the link connects a high bandwidth integrated circuit of the one processor cell with another high bandwidth integrated circuit of another processor cell (16, fig. 1; col. 1, lines 41-52; col. 3, lines 13-19). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Ogus and Baumgartner because Baumgartner's shared memory and high bandwidth between two processor cells would allow the multiprocessors to communicate each other with a maximum interconnect bandwidth.

6. As to claim 2, Ogus discloses multiprocessor system (fig. 9; col. 20, lines 43-44). However, Ogus does not specifically disclose a symmetric multiprocessor system. Baumgartner discloses a symmetric multiprocessor system (parallel multiprocessors; col. 1, line 41 – col. 2, line 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Ogus and Baumgartner because Baumgartner's symmetric multiprocessor system would improve the scalability of Ogus' system by providing equal processor load balancing, thereby reducing response time.

7. As to claim 3, Ogus discloses said software is an operating system (335, fig. 14; col. 6, lines 6-15).

8. As to claim 4, Ogus discloses said network is an Ethernet local area network (Ethernet; 18, fig. 2; col. 6, lines 44-51).

9. As to claim 5, Ogus discloses said multiprocessor system includes at least two processor cells interconnected in a configuration chosen from a group of configurations consisting of: a fully interconnected configuration (fig. 9), a cross-bar configuration, a mesh configuration, or a ring configuration.

10. As to claim 6, Ogus discloses determining whether said link provides sufficient

bandwidth to complete said network operation (col. 2, lines 49-56; col. 3, lines 4-19; col. 8, line 65 – col. 9, line 2; col. 14, lines 52-65).

11. As to claim 10, it is rejected for the same reasons set forth in claim 1 above. In addition, Ogus discloses installing software on at least one processor cell of said plurality of processor cell (335, 336, 337, fig. 14; col. 6, lines 6-15), wherein said software is aware of said plurality of links between said plurality of processor cells (col. 2, lines 49-56; col. 3, lines 4-19; col. 8, line 65 – col. 9, line 2; col. 14, lines 52-65).

12. As to claims 11 and 20, it is rejected for the same reasons set forth in claim 2 above.

13. As to claims 12 and 22, it is rejected for the same reasons set forth in claim 3 above.

14. As to claims 13 and 21, it is rejected for the same reasons set forth in claim 4 above.

15. As to claims 14 and 24, it is rejected for the same reasons set forth in claim 5 above.

16. As to claims 15 and 25, it is rejected for the same reasons set forth in claim 6

above.

17. As to claim 23, Ogus discloses said operating system is installed on at least one processor cell of said plurality of processor cells (335, fig. 14; col. 6, lines 6-15).

18. Claims 7-9, 16-19 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogus (US 6,587,875), Baumgartner et al. (US 6,334,177), further in view of Dally et al. (US 6,370,145), hereinafter Dally.

19. As to claim 7, Ogus discloses a first link of said plurality of links does not provide sufficient bandwidth to perform said network operation (link saturation; col. 14, lines 52-65; col. 19, lines 28-31). However, Ogus and Baumgartner do not specifically disclose choosing a second link from said plurality of links when a first link of said plurality of links does not provide sufficient bandwidth to perform said network operation. Dally discloses choosing a second link (alternative path; col. 6, lines 66-67) from said plurality of links (col. 6, lines 30-39) when a first link of said plurality of links does not provide sufficient bandwidth to perform said network operation (congestion; bottleneck; col. 5, lines 24-43) (col. 5, lines 44-53; col. 6, lines 59-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Ogus, Baumgartner and Dally because Dally's backup link would improve reliability of the system by allowing for an alternative path to improve fault tolerance and load balance (Dally; col. 6, lines 66-67).

20. As to claim 8, Ogus and Baumgartner do not specifically disclose suspending said network operation when said link of said plurality of links is not providing sufficient bandwidth to perform said network operation; and resuming said network operation when said link of said plurality of links provides sufficient bandwidth to perform said network operation. However, Dally discloses suspending said network operation when said link of said plurality of links is not providing sufficient bandwidth to perform said network operation (stop sending data; col. 2, lines 30-35); and resuming said network operation when said link of said plurality of links provides sufficient bandwidth to perform said network operation (channel state update; col. 10, line 63 – col. 11, lines 20; channel state table; 80, fig. 11B; col. 11, lines 27-37; status of the channel: idle, busy, tail pending; col. 12, lines 23-45; col. 12, line 54 – col. 13, line 26). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Ogus, Baumgartner and Dally because Dally's suspending and resuming the network operation would improve the performance of the system by eliminating wasted time by blocking network operation when aware of the saturation on the link.

21. As to claim 9, they are rejected for the same reasons set forth in claims 7 and 8 above.

22. As to claims 16 and 26, it is rejected for the same reasons set forth in claim 7 above.

23. As to claims 17 and 27, it is rejected for the same reasons set forth in claim 8 above.

24. As to claims 18 and 28, it is rejected for the same reasons set forth in claim 9 above.

25. Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection.

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jungwon Chang whose telephone number is 571-272-3960. The examiner can normally be reached on 9:30-6:00 (Monday-Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A Follansbee can be reached on 571-272-3964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWC
June 24, 2005

JOHN FOLLANSBEE
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